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Duodenal ulcer perforation in the rural population of Andhra Pradesh: A tertiary care hospital based study

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Abstract
Hyperacidity is not a prerequisite for duodenal ulcers. Failure of mucosal defenses against gastric acid and pepsin results in ulceration Based on today's life style it is evident that the epidemiology of peptic ulcer disease largely are related to environmental factors, primarily *Helicobacter pylori* infection, NSAID use, and smoking, Out of 52 cases of perforated duodenal ulcers, 38 cases (73%) belonged to lower socioeconomi status. Mortality of perforated duodenal ulcer has declined from 40 percent to the present level of less than 10 percent, Perforation is an acute emergency which has to be treated without delay to decrease the mortality.

Keywords: Ulcer perforation, NSAIDS, mortality

Introduction
Duodenal ulcers occur due to an imbalance between Gastroduodena mucosal defense mechanisms and the damaging forces, particularly gastric acid and pepsin. Hyperacidity is not a prerequisite for duodenal ulcers. Failure of mucosal defenses against gastric acid and pepsin results in ulceration [1].
Approximately, 5-10 percent of patients with duodenal ulcer develop perforations.[2] Mortality of perforated duodenal ulcer has declined from 40 percent to the present level of less than 10 percent, largely due to early diagnosis and treatment. In the duodenum, the ulcers that perforate are located anteriorly, and the aphorism that - anterior ulcers perforate, posterior ones bleed is a relevant today as ever. Time trends in the epidemiology of perforated peptic ulcer disease reflect complex, multifactorial etiologies. Based on today's fast and instant life style it is evident that the epidemiology of peptic ulcer disease largely reflects environmental factors, primarily *Helicobacter pylori* infection, NSAID use, and smoking [3].
The incidence of mortality due to perforation is 5-10%. Mortality increases up to 50% if the perforation has been present > 24 hours. Surgical delay is a well-established negative prognostic factor and limiting surgical delay in patients with perforated peptic ulcers (PPU) seems of paramount importance [4]. In men duodenal ulcers are more common than in females. The male-to-female ratio for duodenal ulcers is about 3:1

Methods
The study was conducted in the Department of Surgery, Great Eastern Medical School and Hospital, Ragolu, Srikakulam during November 2016 to November 2017. The diagnosis of duodenal ulcer perforation was that established by the admitting surgeon, based on clinical features and supposed by radiological evidence and confined at operation.
Surgery was defined as urgent when time is less than 4 hours between admission and surgery, same day (4-24 hours) and delayed at a later time during the same admission. This study comprises of 52 cases of duodenal ulcer perforation admitted in the Department of Surgery. Operative details included the site and nature of operation performed. Mortality was defined as death following surgical procedure. Post-operative morbidity was defined in terms of duration of hospital stay and associated complications following surgery.

Discussion
Duodenal perforation, complication of duodenal ulcer, is one of the commonest surgical emergencies requiring hospitalization and early management. Perforated duodenal ulcer remains a surgical emergency but nowadays it rarely results in death.

The discussion is based on the analysis of data pertaining to 52 cases of perforated duodenal ulcers.

Age: The age of patients in this study is ranging from 18 to more than 60 years. The peak age incidence was between 30 and 39 years.

Gender: In the current study out of 52 cases, only 4 cases of females with perforated duodenal ulcers were observed. Our study found male predominance for perforated duodenal ulcers which correlates to the reported observation.

Socioeconomic status

Perforation due to duodenal ulcer was common in lower socioeconomic group. Out of 52 cases of perforated duodenal ulcers, 38 cases (73%) belonged to lower socioeconomic status. All patients in the present study were subjected to plain X-ray abdomen in erect position. Out of 52 cases studied, 50 patients (96.2%) were found with pneumo-peritoneum

Table 1: Age distribution

Age (yrs)	No. of Cases	Percentage (%)
<19	3	5.8
20-29	12	23.1
30-39	14	26.9
40-49	12	23.1
50-59	7	13.4
>60	4	7.7
Total	52	100

Among 52 patients, order of incidence is 30-39 > 20-29=40-49 > 50-59 The incidence was found to be less under 19 years of age group and Above 60 years age group.

Table 2: Showing gender distribution

Gender	No. of cases	Percentage (%)
Male	48	92.3
Female	4	7.7
Total	52	100

Table 3: Socioeconomic status

No. of Cases		Percentage (%)
Lower	38	73
Upper	14	27
Total	52	100

Socioeconomic status revealed that 73% of patients belong to lower class and remaining 27% belong to upper class.

Table 4: History of peptic ulcers of patients with perforated duodenal ulcers

History	No. of Cases	Percentage (%)
Present	28	53.8
Absent	24	46.2
Total	52	100

In this present study, 53.8% of patients had h/o Peptic ulcer.

Table 5: Presence of air under diaphragm in patients with perforated duodenal ulcers

No. of Cases		Percentage (%)
Air Present	50	96.2
Air Absent	2	3.8
Total	52	100.00

On X- ray, 96.2% of patients had finding of air under diaphragm.

Table 6: Gender incidence

Author	Year	Male : Female ratio
Paul. H. Jordan [12]	1995	26:1
Primrose N. John [13]	2004	2:1
Rodney Maingot [14]	1990	5:1
Noola GS *et al.* [16]	2013	19:1
Present study	2018	12.1

Table 7: Comparison of Pneumoperitoneum

Presence of pneumoperitoneum		
Study	Year	Pneumoperitoneum
Shaffer study [15]	1992	70%
Noola GS *et al.* [16]	2013	91.67%
Present study	2018	96.2%

Conclusion

A lot more research has to be done on this to understand it even better and Perforation is an acute emergency which has to be treated without delay to decrease the mortality.

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